

**WHAT IS CLAIMED IS:**

1. Coating apparatus comprising

3 a coating vessel comprising

a vertical wall having

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a vertical interior surface having a circular cross section and an  
imaginary vertical axis,

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an open top and

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a bottom,

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a vertical shaft supported on the bottom of the coating vessel, the shaft having an axis  
aligned coaxially with the imaginary vertical axis of the interior surface having the circular  
cross section, and

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a coating liquid inlet / outlet adjacent to the bottom of the coating vessel.

2. Coating apparatus according to claim 1 including a first spacing device having a  
centered hole and a hollow shaft having a first open end and a second open end, the first  
open end being secured to the first spacing device and aligned with the first open end, the  
first open end and hollow shaft adapted to slide onto and align coaxially with the vertical  
shaft supported on the bottom of the coating vessel whereby the vertical shaft extends  
beyond the second open end of the hollow shaft.

3. Coating apparatus according to claim 2 wherein the first spacing device has a seal adapted to mate with a first end of a hollow cylinder having a first end and a second end.

4. Coating apparatus according to claim 2 wherein the coating liquid inlet and the coating liquid outlet are located below the first spacing device when the first spacing device is slid onto and aligned coaxially with the vertical shaft supported on the bottom of the coating vessel.

5. Coating apparatus according to claim 2 including a second spacing device having a centered hole adapted to slide onto the second open end of the hollow shaft.

6. Coating apparatus according to claim 5 wherein the second spacing device has a seal adapted to mate with the second end of the hollow cylinder.

7. Coating apparatus according to claim 5 including a first fastening mechanism adapted to temporarily fasten to the second open end of the hollow shaft to urge the second spacing device from the second open end of the hollow shaft toward the first open end.

8. Coating apparatus according to claim 7 wherein the second open end of the hollow shaft is threaded and the first fastening mechanism is a nut.

9. Coating apparatus according to claim 7 including a second fastening mechanism adapted to temporarily fasten to the vertical shaft extending beyond the second open end of the hollow shaft to urge the hollow shaft toward the bottom of the coating vessel.

10. Coating apparatus according to claim 9 the vertical shaft extends beyond the second open end of the hollow shaft is threaded and the second fastening mechanism is a nut.

11. Coating apparatus according to claim 1 wherein the coating liquid inlet and the coating liquid outlet occupy the same location.

12. Coating apparatus according to claim 11 wherein the coating liquid inlet and the coating liquid outlet are part of the vertical shaft where it is supported on the bottom of the coating vessel.

13. A coating process comprising

providing an assembly comprising a hollow cylinder, a hollow shaft coaxial with the cylinder connecting the first spacing device and the second spacing device,

mounting the assembly on a vertical rod which is concentric to and mounted within a cylindrical coating vessel having a top and bottom,

introducing coating liquid into the coating vessel adjacent to the bottom to immerse most of the cylinder, and

withdrawing the liquid from the coating vessel adjacent to the bottom to deposit a layer of the coating liquid on the cylinder.